

VALVE

Brainiac -
load impedance and operating points -
part III

Rene Boulders -
a turntable odyssey, part one

Doc B -
a phono pre(liminary), CD treatments

Jim Dowdy -
112-A parafeed line stage

VSAC 98 photos!



Scott Divers' fabulous green and beige leather covered 56 preamp sets a new standard of cool at the VSAC 98 Craftsman Competition. Photo by Hank Murrow

Did we mention that Foreplay is shipping?

Doc B.

First, let me thank you for the prompt and timely shipping of my Foreplay preamp kit. It arrived with all pieces intact and accounted for, exactly as I had the time necessary to begin the building process. Second, I would like to say that the instruction manual is EXTREMELY thorough, and flows from start to finish very well. I did find one minor omission, and that is to solder both connections of the resistor from A3 to the left hand terminal of the left volume pot. Another recommendation I might add is to specify the exclusive use of 22 gauge hookup wire, as the ground buss (terminal 14) gets crowded very quickly.

Other than the above comments, the final check-out went well and I was finally able to place the Foreplay in my system this morning. I've only got three words to say about the sound, "OH MY GOD!". I will highly recommend this kit to anyone who is looking for a simple line stage. I would say it is nearly every bit as good as the Audible Illusion L-1 I had here last summer for demo, and at 1/10th the price. Thanks very much for the wonderful product. It's helped me greatly with my soldering, as well as my follow-through (I'm notorious for half-finishing projects). I'll probably be ready to tackle the S.E.X. kits for our anniversary.

Thanks very much and regards,

Thomas Martin

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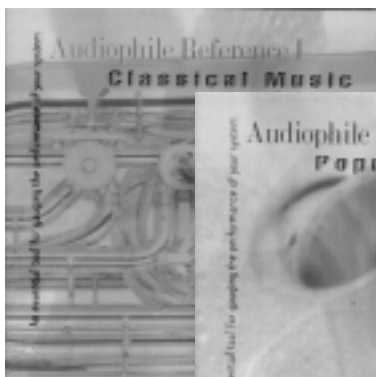
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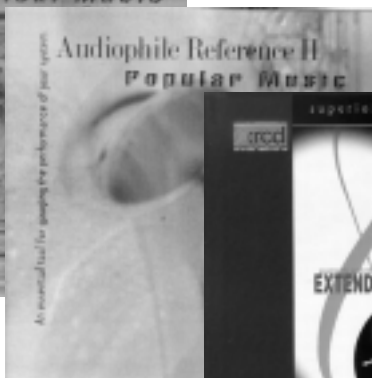
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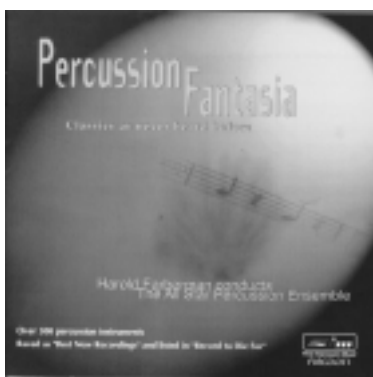
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VALVE

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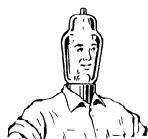
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Many ideas published in this magazine are untried, and involve the use of potentially dangerous parts and tools. In attempting any idea or project published herein, you assume total responsibility for your actions and any harm caused to yourself or others.

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editor's thing

Another VSAC has come and gone. This one was even better than VSAC 97

- slicker offerings from the exhibitors, waay more cool projects in the craftsman's room, a killer blues show, and more esteemed members of the press covering it all.

For the record, we drank the hotel out of three different brands of beer this year.

I have put some of my personal highlights up on the vsac e-mail list (to subscribe, send an e-mail to vsac-request@bottlehead.com), as have some of the cool bottleheads in attendance. We will have a lot of cool pictures up on the VSAC section of Bottlehead.com soon, as well as links to the sites of our friends who have put up photos.

Look for much better coverage of the show in other publications this year, most notably V&T News, Positive Feedback, Listener and hopefully, Fi.

There will be a videotape of show highlights available soon, too. The tentative price will be \$25 for standard VHS NTSC tapes, and other formats may be available as well. Send us an e-mail at bottlehead@bottlehead.com if you'd like a copy, and we'll let you know when they are ready.

As the show has become more involved and expensive, I have requested some help in the future production of VSAC. To this end a committee was formed after the show to help with promotion and production of future VSACs. Look for even fancier, bigger shows in the future, at a bigger, better venue closer to Seattle, that will always have a special place for the DIYer. Thanks to those of you who have volunteered to help with all of the tremendous effort involved in putting something like this on. You'll get your assignments soon!

Also I would like to thank several folks who went above and beyond the call of duty in their assistance this year. Gill Loring did a superb job of handling the Electronic Tonalities/First Impression Music room, supplying his own Well Tempered turntable, and a killer Theta Jade CD transport, courtesy of Nuts About Hi Fi. My main man John Tucker burned some serious midnight oil getting our eXtreme Audio room up and running (and sounding totally eXtreme). Gary Dahl did a yeoman's job of handling all sorts of show business, like getting the awesome Craftsman Room together, supplying two great pairs of speakers for that

room and the seminar room, and single handedly loading all the exhibitor's boxes into our delivery truck on the Friday before the show. Paul Joppa did his usual superb job of running the VSAC seminars, giving a couple of the sessions himself. And how cool was it for the best mastering engineer on the planet to be the sound engineer for the Paul Delay show? Thanks Paul Stubblebine. Thanks also to Winston Ma for supplying all the nice room treatment for the ET/FIM room, and the one of a kind Rogers CD transport used in the eXtreme Audio room. Thanks also to Jeannie Hopkins, Adrienne Ericsson, and Bruce Borley for their help with registration. And thanks to all the other great volunteers this year, both VALVE members and OTS members. We couldn't have done it without you, folks.

And now to a different subject. Before you pick up your phone and call to ask why we haven't gotten very many issues out this year, let me say that we will make up for it the next few months. We will continue with VALVE in its current format through the end of 98, and then in January we will offer an exciting new alternative, making VALVE available in Adobe Acrobat format by subscription through bottlehead.com, for a reduced price. We will also offer VALVE in hardcopy for the two or three of you who refuse to buy computers (c'mon folks, it's almost the 21st century, and they are cheap), but we will be forced to increase the hardcopy subscription rate a bit, as we find we can no longer do all of the bindery and mailing by ourselves here at Rancho Tonalities, and will be forced to job this work out.

And hey, where are the cool projects you guys are doing? We need to see photos of your projects, with some brief notes or detailed explanation, your choice. With the expansion of VALVE to the Web, we will be able to put up nice high resolution color images and schematics in the .pdf files, so send 'em in!

Now that we're back on track, hop on for a fun ride in the rest of this year's issues. This month starts a series on turntable mods that can be applied to most tables, and next month we start an awesome series by Buddha on supertweaking the Dyna FM-3. I'll be writing a few notes about a new phono stage too.

Thanks again to all the folks who exhibited, attended and volunteered at VSAC 98. *Doc B.*

Back Issues

Back issues are printed to order - please allow two weeks for delivery - add \$5 postage for orders outside the US

Volume 1 - 1994 issues - \$20

a Williamson amp; Dyna Stereo 70 mod bakeoff; converting the Stereo 70 to 6GH8's; a QUAD system; triode input Dyna MkII; MkIII vertical tasting; smoothing impedance curves; Altec A7; Ampexes Nagras and ribbon mikes; Triophoni, a 6CK4 amp; audio at the 1939 World's Fair; books for collectors and builders; V.T. vs. R.M.A. cross reference; FM tuner tube substitutions; Big Mac attack - the M1200; 6L6 shootout; a vintage "audessey"; more FM tuner mods; vintage radio mods; Heathkit rectifiers; PAS heater mod.

Volume 2 - 1995 issues - \$20

Rectifier shootout, tube vs. solid; FM 1000 recap and meters; single ended 10 amp; triode output W-4; Optimus 990 - speaker for SE?; star grounds; tuner shootout; Living Stereo, vinyl or CD?; World Audio SE integrated; firin' up - smoke checking; Brook 12A schematic; 6C33 vs. 3C33; Heathkit power transformers; 6B4's + MagneQuest = SEcstasy; W5 mods; triode operating points; Dyna restorations; Marantz 7,8 and Scott LK150 impressions; hackable vintage gear; Quasimodo - PP 805 amp; restoring a Scott 340 in 75 minutes: a dream system for 78's; cartridges and styli for 78's; Restoring a Lowther, Part 1&2; easy tube CD output hack; 6ER5 phono preamp; 304TL & 450TH SE operating points; hypothetical DC ESL amps.

Volume 3 - 1996 - \$25:

Single Watt, Single Tube, Single Ended, an amp for Lowthers; the Vintage Speaker Shootout of 1996, QUAD vs. Lowther, vs. A7; the Voigt Loudspeaker, the Single Ended eXperimenter's kit; cathode coupled SE 6AS7 amp; how to build the Superwhamodyne; refoaming AR woofers; mesh plate tubes; rebuilding QUADS; QUAD amp filter surgery; single gain stage amps; the Brooklet, and Brookson, choke loaded PP 6080 amps; transformer coupled PP 6DN7 amp; the Iron Maiden; Building the Lowther Club Medallion; the TQWT, a tapered pipe enclosure; IT 300B amp.

Volume 4 - 1997 - \$25:

the Whampipe/Hyperwhamodyne; weird interconnects; winding your own SE output transformer; Tapered Quarter Wave Tubes; battery bias; onetuber 417A and 437A amps; DAC attack; 6BL7/211 SE amp; pro sound speakers at AES; 46 plate curves; what's all this about parallel feed?; parafeed line stage; C.W. horn divided by two; Svetlana meets Brooklyn; parallel feed SE 811A amp; parafeed 2A3 amp; Lowther fixes; Altec vs. the competition; VSAC 97 program guide; VSAC 97 photos; Andy Bartha's cool speaker cables; Paul Joppa's 6DN7 driver stage; S.E.X. kit schematic revealed; an Edgarhorn builder's story; direct coupled active loaded parafeed 45 amp; Brainiac's S.E.X. changes; VSAC 97 seminar notes; tweaking the one tube 6DN7 amp, Lowther drivers, and the Wright preamp; 300B S.E.X. amp conversion; mini monitor for 300B amps,

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Load impedance and operating points for single-ended triode amplifier stages

Part Three: Nonlinear Triodes

by Paul Joppa

The first part of this series discussed the general features of operating point analysis for single ended tube amplifiers, and the second gave specific results and rules of thumb for designing such amplifiers with highly linear triodes. I'm not going to talk about multi-grid tubes (I don't like 'em!) but we can't always have the best tubes so it seemed to me necessary to explore the consequences of using tubes that do not follow Child's Law very closely. That is the subject of this third and final part of the series.

The basic feature of nonlinear triodes is that the plate curves get crunched up at low currents and high voltages. This means that along a load line, the low-current portion of a signal is attenuated, resulting in increased distortion. There have been a number of attempts to describe this feature mathematically, especially with reference to using the models in circuit simulation software. My approach here is based more on the geometry and physics of the tube, and is also a result of looking for a single parameter by which a tube's linearity can be described.

This model is based on the observation that no tube is perfectly symmetrical, so each electron flow path will have a slightly different gain, i.e. a tube will perform as if it were composed of many smaller tubes in parallel, each with slightly different m or gm . Over most of the operating region there will be an average value which is fairly stable and the tube looks fine. But near cutoff, some portions of the tube will be cut off while other portions are not, leading to a wide variation in equivalent average gain. To make a low-distortion amplifier, operation in this region should be avoided. Some triodes are much more strongly affected by this than others, so the thickness of this low-current region of nonlinear behavior can vary widely and depends on the tube's nonlinearity factor (and on your tolerance for distortion).

My model for the variation in amplification factor is a Gaussian probability distribution.

This means that the amplification factor is characterized by a mean value and a standard deviation. I call the standard deviation, normalized by the mean value, the "nonlinearity factor" or NLF. The analysis consists of simply calculating the weighted integral of Child's Law over all possible values of the amplification factor to evaluate the current as a function of plate and grid voltages.

To test this analysis, I calculated the plate curves for a 6AS7 (a fairly nonlinear triode) and compared them with the published curves. As you can see, the results are fairly similar. I evaluated the nonlinearity factor by taking several points off the published curves and using them to compute a least-squares fit to my model with m and NLF as the variables.

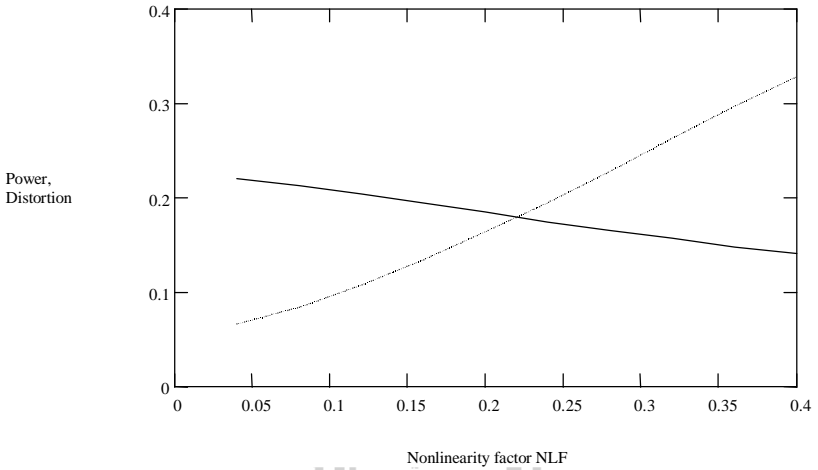
Here are some common tubes and their NLFs, to give you a feel for this parameter: These values are based on published curves rather than actual measurement, though I do plan to set up a measurement scheme someday.

The following plot shows the effect of NLF on power and distortion at a given value of voltage and plate loading - in this case, the usual rule-of-thumb values ($RO/rp=5$, $RL/RO=.6$). Power is the solid line, distortion is the

Type	NLF
300B	0.071
45	0.093
76	0.13
6922	0.143
6SN7	0.186
6AS7	0.205
6BQ5 (triode con- nected)	0.272

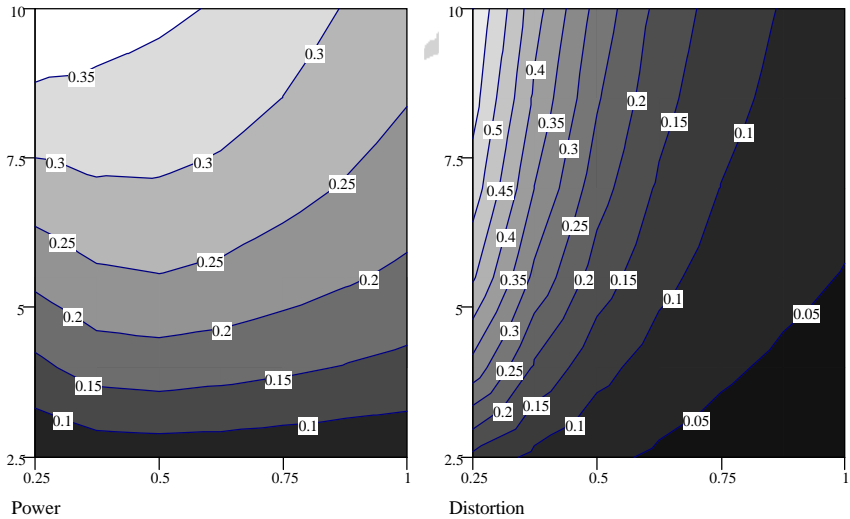
dotted one. Notice how increased NLF slowly reduces power but rapidly increases distortion. In this case, an NLF below 0.1 is needed to obtain less than 10% distortion.

Here are some contour plots similar to the ones in Part 2, showing power and distortion as



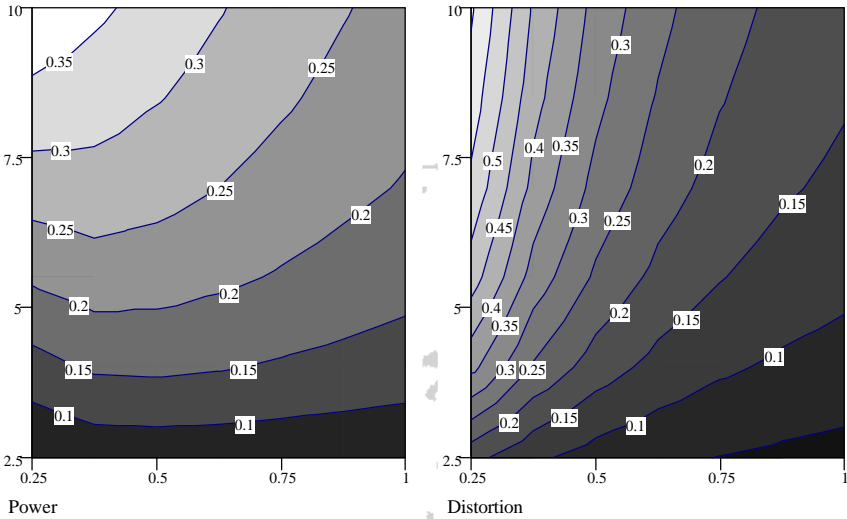
functions of $R0/rp$ and $RL/R0$. The first one is for an NLF of 0.1. This is about as low as you can get in the real world - only 300Bs and 45s are better, of the few I have looked at. Overall they are similar to the NLF=0 plots shown in Part 2, with just a bit more distortion especially at high values of $R0$.

Now here are some power and distortion plots for NLF = 0.2. As you can see, the only way to get low distortion from a tube with a high NLF is to run it at low voltage (and hence high current). j.c.morrison among others has advocated this kind of operation; presumably this is the reason. Note

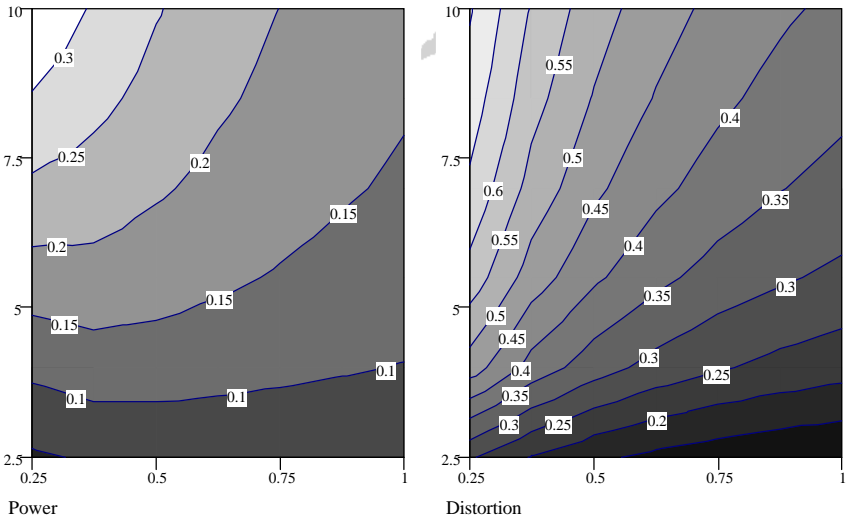


that it will not be very efficient. However, a wide variety of load impedances give essentially the same performance, which is an advantage.

Finally, here's a set of plots for $NLF = 0.4$. This would be a pretty high-distortion tube, maybe like the big Russian 6C33C-B. There's just no way to get much power out of it at any reasonable distortion



level, at least without massive injections of negative feedback. In fact, a 2A3 at 15 watts plate power will put out more audio watts at 5% distortion than a 6C33C-B at 65 watts plate power.



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experiments with a turntable part one

By Rene Bolders

Sometime in 1992 I began to realize that my turntable setup, a Thorens with a Grado cartridge, was quite nice but still far away from a real high end turntable.

One Sunday morning I found an ad in a local newspaper (back then I lived in Berlin, Germany) under "Turntables For Sale, one Thorens 124 and a "Le Tallec". I didn't know what a le Tallec was, so I called the fellow to see what it was all about, and the same night I traveled down to meet him.

There it was, a big heavy black box, sitting on 4 chrome

plated coil springs, 2 glass platters with something black between, and a tonearm which looked like a miniature crane of the type used on oil well drilling platforms in the North Sea. The tonearm turned out to be a Grado Signature.

The owner played a couple of records and I became fascinated because the sound was really good. Something in the back of my mind said, "Buy it and music will come to you." I hardly looked at the Thorens.

That night we settled for DM 1750,-, about \$1000 US back then, for the turntable, Grado Signature tonearm, Grado cartridge, Grado interconnect, and a record clamp as a bonus.

I still use this turntable almost daily and it has been a great joy. Although modified, the basic idea is still the same. The following report describes the turntable and all the modifications I did and how they affected the sound.

I have never seen a factory standard le Tallec, so when I describe a le Tallec I can only report

about my turntable as I bought it, it may have been modified by former owners.

Photo 1 shows the le Tallec as purchased. This turntable is named after Monsieur Jean-Francois le Tallec of France, who constructed and manufactured this model, called Stad.

The base is a beautiful black lacquered box approximately 18" x 14" x 3". The top of the wooden box consists of several layers of different materials to damp unwanted resonances. The sides are made of plywood approximately 1" thick. The bottom looks like a sheet of 1/4" marine grade plywood, covered with a sheet of Teroson, a damping material made in Sweden, used largely on the inside of car doors and roofs. The whole unit is filled with concrete, yes high density concrete, it must weigh about 60 lbs. or so.



Photo 1

Integrated into the concrete are two aluminum tubes, one approximately 1-1/4" for routing a tonearm cable with a straight 5-pole plug, located under the tonearm base, and the other one approximately 3" diameter, located behind

the spindle bearing housing to locate the motor.

The base sits on four chrome plated coil springs which are attached to an adjustable felt covered metal base plate. Thus the turntable sits on springs, but it barely moves because the springs are very stiff. I understand that Monsieur le Tallec wanted to decouple the base from its environment through these springs.

The platter (definitely an eye catcher) consists of two glass plates (green tinted) and a 5mm thick felt mat between them for decoupling and or absorption of unwanted vibrations. Although the unit came with a 3mm thick top felt mat and a record clamp, some folks put the record straight on to the glass with or without the clamp and it works great, without scratching the record. The spindle has inside M6 threads so different kinds of clamps can be

used.

I think that there was a variety of tonearm boards back then, for instance, SME 3009, Fidelity Research FR-64, Ortofon, Alphason HR-100, and so on.

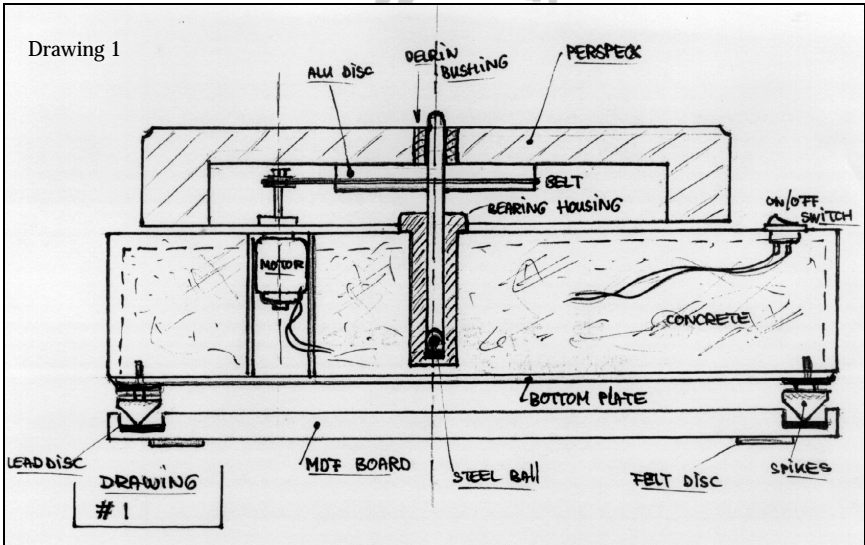
On the left front side is the on/off switch, which is the nicest clicking switch I have ever come across.

The bearing/spindle motor assembly is not visible because it all sits under the platter. Drawing 1 shows how it works.

The motor is a small synchomotor, not very powerful, it barely starts the platter stack and it just keeps the platter running. For more

about spikes, felt mats, acrylic platters, \$5000 cartridges, and so on. More than that, this turntable was developed by someone who used his ears and worked by trial and error. Just as today's Forsell turntable was developed by Dr. Forsell through a lot of experimenting. Dr. Forsell tried just about anything that entered his mind, to see if it was sonically better or worse. It is said he listened to more than 20 different arm tubes to find what would work best.

Anyway, to evaluate the spindle/bearing construction, I will say that my turntable has run almost daily for approximately 20 years and hasn't given any trouble at all. I recently cleaned the bearing/spindle assembly and



detailed information about this see SP #10 and #11.

A small belt runs from the pulley of the motor (a two step pulley, so 45s can be played) to an aluminum disc which itself is pressed on the spindle. This aluminum disc is also the base platform for the first glass disc.

The spindle sits in a teflon bushing which is glued into the wood/concrete base and rests on a small hardened steel ball which forms the actual bearing.

Nothing magical or spectacular so far, this is pure and simple how a turntable should be built. Remember, this turntable was constructed in the 70's, no one had heard

inspected all parts carefully, but there was no sign of wear or damage - it will probably run another 20 years without problem.

But of course, after a while I found a few things I didn't like much, so the tweaking began.

First the chrome plated springs had to go, they are very ugly indeed. It took me a while to come up with a modification which would be cosmetically acceptable and would improve the sound (or at least not make it worse), and it wasn't until I read an article in a German magazine about the Forsell turntable that I had an idea.

In the spirit of the Forsell I began to modify the

base as you can see in drawing 2. First I cut a piece of MDF 18"x14"x3/4" (same size as turntable outside dimensions). Then I drilled four 1" holes, approximately 1"x1" away from the corner, not quite all the way through, to a depth of 7/16".

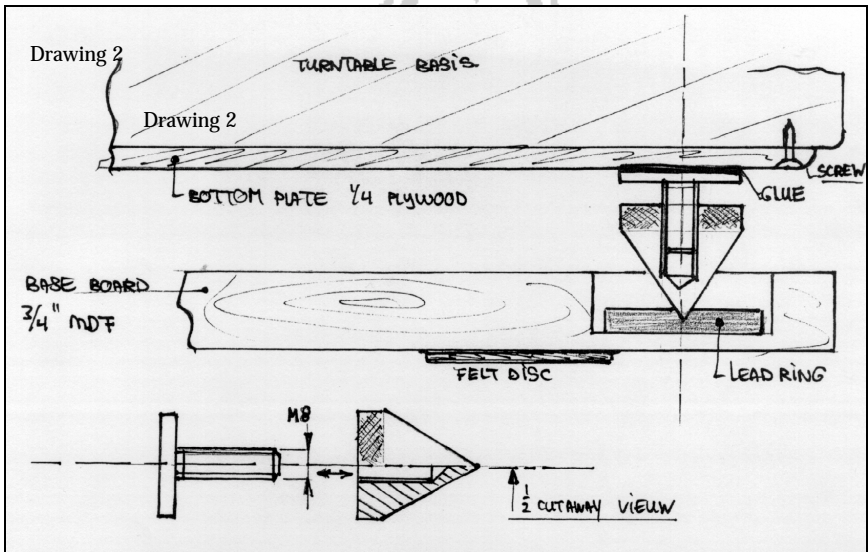
Inside the hole I inserted a little lead disc, 7/8" dia. and 1/4" thick. I glued four felt discs on the underside of the board. Next, I machined adjustable spikes and glued them under the turntable chassis. The adjustability of the spikes means I can level out the turntable exactly. The baseboard was painted in gloss black, so the whole unit looks like it really belongs together.

Now my quest for cosmetic improvement was

installed the baseboard back under the spikes and there it was again, great sound improvement. I wondered why.

After studying several articles about turntables I came to the conclusion that it is of the utmost importance to decouple the turntable from its environment. Several options are available, such as a steel wall-mounted shelf, a block of concrete; slate, (which is very popular in Germany because it is absolutely dead), air tables, heavy equipment racks with heavy marble top plates and so on.

In the spirit of this I constructed an equipment rack out of MDF with a heavy marble top plate. The whole rack rests on six big



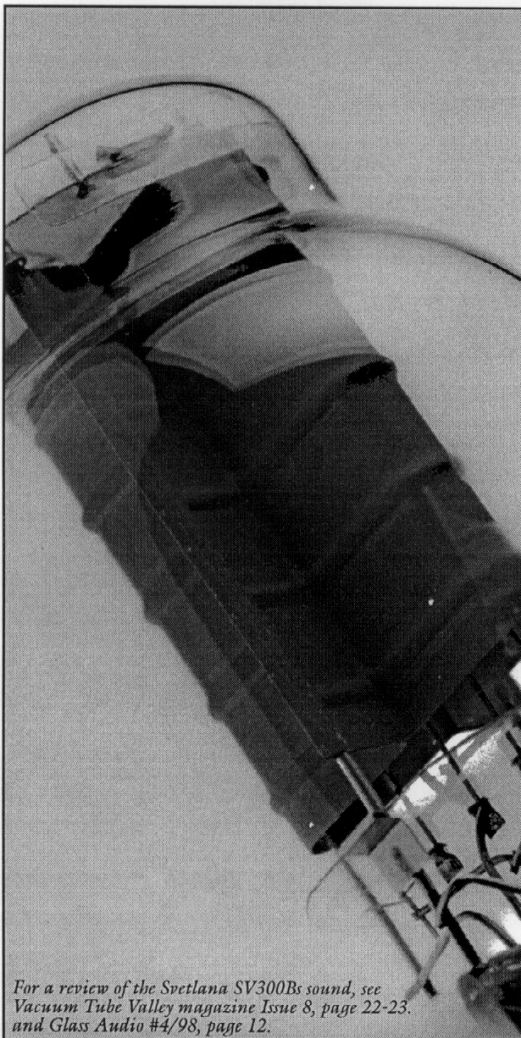
fulfilled, but I prayed that it hadn't altered the sound too much, so one quiet evening I installed everything and played a well known record. From the first tones I stared at my turntable in great disbelief. The music came out of the speakers in a totally different way, so much clearer and with deeper bass and wider soundstage.

I played a few records to see if the magic would last and then decided to do the A/B/A test. I took the baseboard away, unscrewed the spikes and installed the turntable back on the coil springs, played the same records and the magic was gone.

Then I screwed the spikes back on, but left the baseboard out - somewhat better. Last, I

adjusted the spikes, and is filled with equipment and about 200 records. Trust me, everything is dead quiet, nothing moves.

Next month, a new platter and speed control.



For a review of the Svetlana SV300Bs sound, see Vacuum Tube Valley magazine Issue 8, page 22-23, and Glass Audio #4/98, page 12.



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this month's tweaks

by Doc B.

Vinyl in da' house again

I've been playing with a new phono stage. The results aren't perfection, so I won't publish a schematic yet, but the basic idea shows a great deal of promise.

I started with the passive RIAA network published in the RCA tube manual for use with a 12AX7/7025. This EQ is also used by George Wright in the WPP100A, and makes for an easy starting point.

Also, like George, I decided to give the frame grid VHF triodes a try, in my case the current setup uses a 6ER5 for the first (input) stage, and a very similar 6GK5 for the second stage, after the passive EQ.

I used the C4S active loads on each stage, which buys me great power supply isolation, and gets the full gain from the tubes (78-80) a nice option, because I like to use low output moving coil cartridges, and hoped to maybe be able to get enough gain to eliminate the need for a MC step up.

The tubes run in the 10 mA range, with about 135V on the plates. The power supply is an old S.E.X. kit power trans running into ultra fast diodes, which feed a 47 mfd/15H/470 mfd C-L-C filter, which feeds a VR tube shunt regulator.

The sound is pretty damned nice, very dynamic, super fast, plenty of bass control. Unfortunately the tubes are rather noisy, so I have been using an MC step up transformer so I can keep the attenuator turned down on the following parafeed line stage. The idea of running the tubes low and hot creates a bit of a problem, in that the more current the tube sees, the more electrons are rushing through, and the more noise that is likely to be generated. Too bad, because more current sounds mo betta. I will continue with this project, adjusting current and searching for quieter tube samples, and report in more detail when I feel I have conquered the noise issue.

As an interesting aside, Stan Webb found me a Fidelity Research FR-1mk3F moving coil cartridge, circa 1979. I'm loving this cartridge, not as rich in the bass as the Koetsu Black I've been using, but oh so clean, sweet and extended on the top end. If you can find one of these "antiques" give it a try.

Even though this cartridge/phono pre setup is not fully optimized, it's good enough to have me listening to my old faves all over again,

saying, "gee I never heard that before".

CD treatments

Smoothplate and I spent an evening playing with a collection of CD treatments we've acquired over the last year or so.

Now this sounds like snake oil at it's finest, but dadburn it, these treatments work! In fact it wasn't snake oil that won out, it was *shark* oil. We took two copies of the same CD, and ran them with no treatment. They sounded identical. We then used the black marker supplied in the Audience Auric Illuminator CD treatment kit, and applied it to both CDs, as we had convinced ourselves in the past that this smooths the sound out nicely. By the way, in my humble opinion, these markers and almost everything else we used in all of these CD treatments are just a marked up relabel of something you can buy at Safeway. I won't offer opinions of what was really under the labels, suffice it to say that close scrutiny of the packaging, a sensitive nose, and a trip to the grocery store may gain you a lifetime supply of CD tweaks for a couple of bucks.

Anyway, the next step was to use the Auric polishing compound with the nice lint free wipes supplied on one CD, Andy Bartha's Reveal CD cleaner on the other CD. The Reveal treated CD was then covered with an interesting product, Yamamura Q-151, which is made from shark's liver oil.

The effect of these treatments is surprising. They apparently change the index of refraction of the surface of the CD, and reduce a certain amount of light diffusion as well. The sharper the reflection we saw in the CD, the better it sounded. Both treatments were a worthwhile improvement, taking away some level of bloating and smearing, tightening bass and transients, and reducing the dreaded "big head" vocalist sound so common on pop recordings, quite audibly. We only tried four or five CDs, but they all benefitted from the treatment. The Reveal/ shark oil treatment seemed to work a bit better than the Auric Illuminator, but it took an extra step, and remember, we thought the pen from the Auric setup was necessary, even with the other treatment regimen.

So hit the plastic cleaner aisle, the marking pen counter, and the health food store for some supplies, and try this for yourself.



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KR Enterprise Announces their New Single-Plate 2A3 Vacuum Tube

We finally succeeded in talking the *power-crazed* Dr. Kron into producing a tube for the intuitive listeners of music. A tube for those collective soles courageous enough to venture into the realm of two watt single-ended amplifiers. These KR2A3s are to be admired. Built to the same exacting standards of KR Enterprise's other tubes featuring gold-plated pins and a ceramic base, the best vacuum in the industry, and the new mono-plate design featuring KR Enterprise's patented filament and cathode construction. But wait, Dr. Kron didn't completely give in to the flea-powered hysteria. These new single-plate KR2A3s are powerful. So powerful in fact they can easily pump out 4, 5, 6 watts or more (*you'll have to adjust your circuitry of course*) whilst retaining the delicate balance you expect from a 2A3.

But how do they sound you might ask? They are truly wonderful sounding tubes. Maybe even the best sounding tube in the whole KR Enterprise lineup! The KR2A3 has more of everything...more bottom end...more top end extension... more 3-dimensional sound staging. And smooth, so smooth....OK, OK I'm starting to sound like a reviewer in the glossies.

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VSAC 98 - Craftsman Room

photos by Hank Murrow



Scott Divers walked away with a pair of KR52Bs courtesy of Welborne Labs for his preamp shown on the cover and the SE KT88 amp shown here.

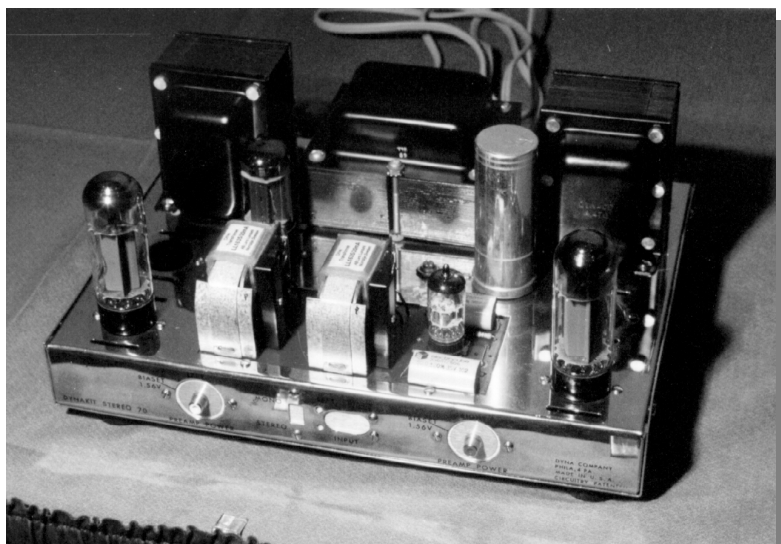


Robert Root brought a car full of cool stuff, including his gorgeous brass chassis Loesch style 211 amps, and came away with a prize of \$200 of his choice of MagneQuest iron, courtesy of MagneQuest

craftsman room, continued



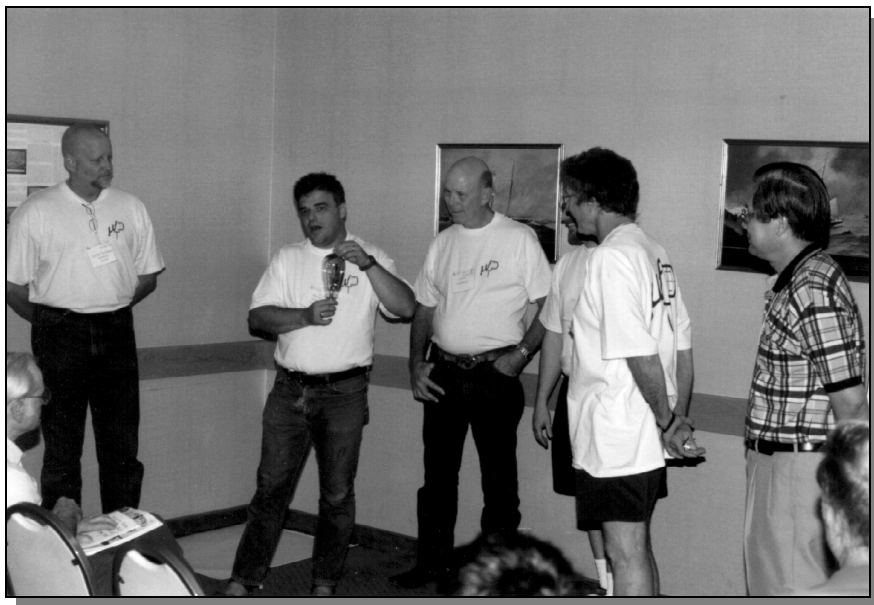
Ed Billeci was back, with a Sato horn and this wild 250TL amp. Ed came away with a big box full of Auricaps and CD treatment courtesy of Audience.



Here's a cool project, built by Dave MacDonald. It's a Lundahl IT coupled SE EL34 triode conversion to a Stereo 70, with restacked, airgapped Dyna OTs. We hope to see more about this amp in a future issue.

VSAC 98 the UltraFi Dream Team

photo by Lynn Olson



My seminar on Superwhamodyne history was briefly delayed by the announcement of a very exciting new joint venture, the UltraFi Dream Team.

The team will consist (from left to right) of John Tucker (production circuit prototyping/project manager), Mike LaFevre (inductor design and manufacture), John "Buddha" Camille (design development/circuit designer), Doc B., (new product development/marketing, and well, somebody had to be boss, and I wasn't qualified for the other jobs), hiding behind Garber, Don Garber (product styling/chassis prototyping) and Winston Ma (marketing and business advisor)

Watch for some no-holds-barred products in the next year or two. First will be a Garberized version of the eXception parafeed preamp premiered in the eXtreme Audio and ET rooms at VSAC. Soon to follow should be a parafeed 300B amp. Beyond that, we hope to work with Triode No. 1, the handmade Japanese triode called the best in the world by Stereo Sound magazine. Here LaFevre holds one up for inspection.

How wild will this stuff be?

Things like tubes cooled in blown glass oil baths, active loaded output stages, constrained layer chassis plates, and superpermdur parafeed C-cores have been discussed in early brainstorming sessions amongst various team

more VSAC 98 photos

photos by Lynn Olson

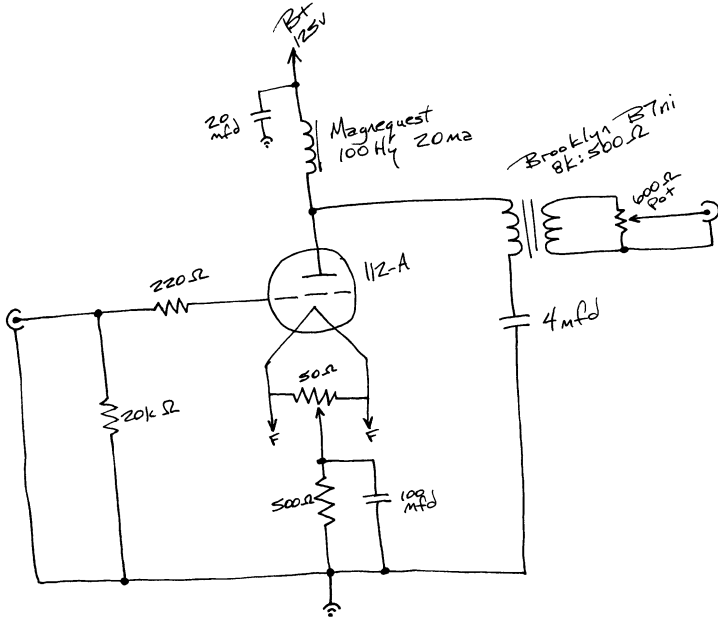


Decisions, decisions. Here the Paraglow 2A3 kit is compared with its little brother, the eXcite 45 parafeed amp from eXtreme Audio, playing with the eXception preamp, modified ACG X-DAC, one of a kind Rogers CD transport, and eXemplar horns. eXtreme indeed!



The ElectronicTonalities/First Impression Music/ MagneQuest/Jena Labs room. The new FIM Model 4 loudspeaker prototypes got a great reception, and after using the set of reference cables generously loaned by Jena Labs, and the Theta Jade transport loaned by Nuts About Hi fi, it was hard to go back to my own listening room!

jim dowdy's 1 1 2-A parafeed line stage



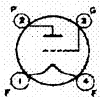
HANDMADE ELECTRONICS

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Capacitors- KimberKap, RelCap MultiCap, Hovland MusiCap, Nichicon Muse, low ESR & QX series, Cerafine, Black Gate, Solen, Our own high quality oils, 500vdc 1% silver micas, Philips 1% polystyrenes. Resistors- Holco metal film, IRC RN metal glaze 1% series and AS series wirewounds, Mills & Memcor wirewound, carbon composition resistors, Alps, Clarostat, Dale volume controls. Tubes/Valves- Golden Dragon, Svetlana and other Russian made. Connectors- Kimber, Cardas, Edison-Price, WBT and some nice inexpensive plastic binding posts that do the job.

Transformers- MagneTek filaments, Hammond, MagneQuest and Tango (interstageonly). Metalwork- Hammond

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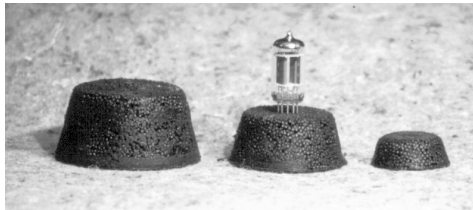
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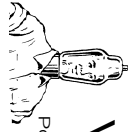
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